



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/801,326

03/16/2004

William J. Borland

EL0545 US NA

5088

23906

7590

11/29/2005

EXAMINER

MAI, NGOCLAN THI

E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
BARLEY MILL PLAZA 25/1128  
4417 LANCASTER PIKE  
WILMINGTON, DE 19805

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/801,326

Applicant(s)

BORLAND ET AL.

Examiner

Ngoclan T. Mai

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

Art Unit: 1742

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 10 recites the paste comprises 55-65% copper powder by weight of the composition and claim 12 recites the paste comprises about 5-8% cuprous oxide powder by weight of the composition; however there are not teaching or suggestion in the specification as originally filed regarding copper powder or cuprous oxide powder being the amounts as claimed.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims do not further limit the parent claims because the parent claims with the language "consisting essentially of" is close to other material.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1742

***Claim Rejections - 35 USC § 103***

4. Claims 1-5, 8-13, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell (U.S. Patent No. 4,172,919) in view of Asada et al. (U.S. Patent No. 6,060,1650, now Asada).

Mitchell discloses a copper-based powder composition consisting essentially of copper powder, copper oxide and  $\text{Bi}_2\text{O}_3$ -based glass, see abstract or col. 2, l. 33-36. Note that  $\text{Bi}_2\text{O}_3$ -based glass is a bismuth borosilicate glass.

Mitchell differs from the claims in that Mitchell does not specifically teach lead germanate glass.

In the same field of endeavor, Asada teaches that bismuth borosilicate, lead germanate and other borosilicate glasses are known for use as inorganic binder in a thick film paste, see col. 4, l. 10-21.

It would have been obvious to one of ordinary skill in the art to modify the copper-based powder composition taught by Mitchell by substitute  $\text{Bi}_2\text{O}_3$ -based glass with lead germanate glass as it is known by Asada to substitute one for the other in a conductor paste environment as an inorganic binder, see MPEP 2144.06.

As for claims 8 and 9 regarding a screen-printing copper electrode composition and a copper-based electrode paste composition, see col. 4, l. 30-28 and 3-5 of Mitchell.

As for claims 2, 4, 5, 12 and 13 regarding the amount of copper powder, cuprous oxide powder and glass powder, see col. 2, l. 34-36 of Mitchell.

As for claims 3 and 11 regarding the amount of Ni powder, the limitation of up to 1% by weight includes zero as a lower limit, In re Mochel, 470, F.2d 638, 176 USPQ 194 (CCPA 1974).

As for claim 16 and 17, while Mitchell does not specifically teach the powder composition and the paste composition are incorporated into a capacitor, Asada teaches in the field of electronics, thick film pastes, such as conductor pastes and resistor pastes, have been used for the production of electronic circuits and components, such as resistors, capacitors, and IC packages.

Therefore it would have been obvious to incorporate the powder composition and paste composition taught by Mitchell into capacitor since using such powder and paste compositions in such environment is known by Asada. Also note that a mere statement of a new use for an otherwise old or

Art Unit: 1742

obvious composition cannot render a claim to the composition patentable. See In re Lemin, 51 CCPA 942, 326 F.2d 437, 140 USPQ 273 (1964), In re Thuau 135 F.2d 344, 57 USPQ 324 (CCPA 1943), Ex parte Douros 163 USPQ 667 (POBA), and In re Craige, 188 F.2d 505, 89 USPQ 393 (CCPA 1951).

5. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell and Asada as applied to claims 1 and 13 above, and further in view of Cross et al (U.S. Patent No. 4,027,074, now Cross)

The combination of Mitchell and Asada differs from the claims in not teaching replacing part of germanium with Si.

Cross teaches up to 2/3 of molar basis of the germanium in lead germanate has been substituted with silicon to facilitate the transformation of nonferroelectric glassy material into a the ferroelectric form having higher ferroelectric transition temperature and once formed it is more stable to temperature variation, cool 3, l. 5-14. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute part of the germanium of the lead germanate with silicon as taught by Cross for the noted benefit.

6. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell and Asada as applied to claims 1 and 13 above, and further in view of Zhang et al (U.S. Patent No. 6897074, now Zhang).

The combination of Mitchell and Asada differs from the claims in not teaching replacing part of lead with at least one of the element as recited in the claims.

Zhang teaches doping PGO, i.e., lead germanate thin film with at least one of the elements as recited to modify the Curie temperature properties of PGO thin film for ferroelectric capacitor suitable for use in memory application. The doping is carried out by replacing part of lead with at least one of the recited elements, see col. 2, l. 16-18.

Art Unit: 1742

Thus it would have been obvious to one of ordinary skill in the art to modify the lead germanate taught by Asada by replacing the lead with the element as taught by Zhang for use in memory application because it is well settled that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination (MPEP 2144.07).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1742

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ngoclan T. Mai  
Primary Examiner  
Art Unit 1742

n.m.